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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,010	04/06/2001	David L. Patton	82462RLO	6397

7590 12/13/2004  
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EXAMINER

PATEL, SHEFALI D

ART UNIT PAPER NUMBER

2621

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/828,010	<b>Applicant(s)</b> PATTON ET AL.	
	<b>Examiner</b> Shefali D Patel	<b>Art Unit</b> 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 3, 2004 has been entered.

### ***Response to Amendment***

2. The amendment was received on November 3, 2004 and as been entered.

### ***Response to Arguments***

3. Applicant's arguments, see remarks on pages 4-5, filed November 3, 2004, with respect to the rejection(s) of claim(s) 1-11 under 102/103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Freneix (US 5,774,568).

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Freneix (US 5,774,568).

Art Unit: 2621

With regard to claim 1 Freneix discloses a method for capturing at least one image of an existing man-made structure (i.e., welds, col. 3 lines 25-47) and for detecting the presence of failure(s) in such existing man-made structures (detecting cracks, col. 3 line 34) comprising: (a) providing a detectable material on a surface (i.e., dye, col. 3 lines 34-36) or in an existing man-made structure so that portions of the detectable material will be present in the failure(s) of the existing man-made structure that accentuates the failure (dye penetration technique is used to detect the defects, col. 3 lines 34-47), wherein the detectable material is separately applied, after forming the surface or the man-made structure (the dye is applied to the welds which already exists (before applying the dye) col. 4 lines 65-67, col. 5 lines 11-16); (b) providing an image sensor (i.e., camera 40, col. 4 lines 43-46) and which captures at least one image of the existing man-made structure and identifies failure(s) due to the existence of the detectable material in the failure(s) to provide at least one digital image (See, col. 3 lines 55-61); and (c) processing the captured digital image(s) to provide a visual image of the existing man-made structure to determine the presence of failure(s) in the existing man-made structure (the defects are provided by synthesizing images at col. 5 lines 9-40).

With regard to claim 2 Frenetic discloses the image sensor being spaced remotely from the existing man-made structure (the image sensor, 40, is remotely spaced on a robot at col. 4 lines 43-48 ) and further including: (d) sending captured processed digital images with detected failures to a customer (sending the images and information to an operator at col. 3 lines 47-55).

With regard to claim 3 Freneix discloses comparing previously captured digital images with newly captured digital images to determine variations in the captured digital images at

Art Unit: 2621

predetermined coordinates, which indicate a potential failure in the existing man-made structure (see, col. 5 lines 55-67).

With regard to claim 4 Freneix discloses the digital image(s) being captured by a capture device which is located in a fixed structure position above a ground location (the camera is mounted on a robot at col. 3 lines 51-53 and col. 4 lines 43-45) (or in a moving structure including an aircraft or satellite).

With regard to claim 5 Freneix discloses the image processing including storing in memory a representation of different failures to be detected (col. 2 lines 57-59) and comparing the captured digital image with the failures to determine the presence of a failure (See, col. 5 lines 55-67), and location of such failure (See, col. 5 lines 37-40).

With regard to claim 11 Freneix discloses forming the surface or man-made structure at a fixed location (weld 1 by means of adapter 10 is welded to a cover 20 on a vessel which is fixed, col. 4 lines 3-10).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freneix in view of Usami et al. (hereinafter, "Usami") (US 6,309,728).

With regard to **claim 6** Freneix discloses method for detecting material in an object as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by

Art Unit: 2621

reference. Freneix does not expressly disclose having detectable material interact with incident radiation to cause radiation from the failure in the existing man-made structure to be detected by the image sensor. Usami discloses this at col. 9 lines 59-67 and col. 10 lines 33-62. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Usami with Freneix. The motivation for doing so is that when portion of the dye recording layer, which is irradiated with the laser beam, absorbs the light, and its temperature is locally raised. As a result, a physical or chemical change (for example, generation of pit) takes place, and the optical characteristic is changed as suggested by Usami at col. 1 lines 40-50. Therefore, it would have been obvious to combine Usami with Freneix to obtain the invention as specified in claim 6.

With regard to **claim 8** Freneix discloses the detectable material is included in a liquid solution or solid solution, which is distributed on the failure in the existing man-made structure (the dye at col. 3 lines 32-39).

With regard to **claims 7, 9 and 10** Freneix discloses detectable material as mentioned above in claim 1. However, Ferguson does not disclose detectable material being encapsulated dyes, phosphors, lanthanide, halogen, halide, or cholesteric characteristics. It would have been an obvious matter of design choice to modify Freneix's reference by having the detectable materials included herein, since applicant has not disclosed that having this detectable material solves any stated problem or is for any particular purpose and it appears that having detectable materials of encapsulated dyes, phosphors, lanthanide, halogen, halide, or cholesteric characteristics would perform equally well as the coating material used to detect failure(s) in Freneix's invention.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,535,141.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D Patel whose telephone number is 703-306-4182. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

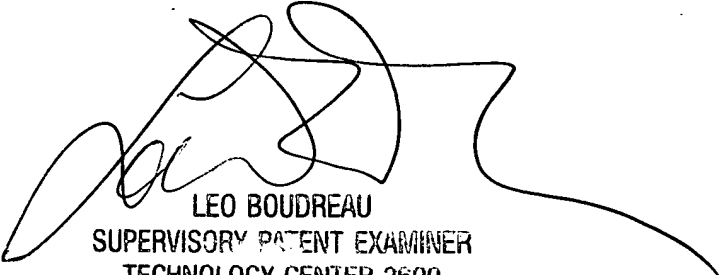
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel  
Examiner  
Art Unit 2621

December 9, 2004



LEO BOUDREAU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600